

## Claims

1. A phosphorus-modified silane which contains at least one methoxy group bound to the silicon and has the general formula I:



where

10

the radicals  $\text{R}^1$  are each, independently of one another, a substituted or unsubstituted alkyl, alkenyl, cycloalkyl or aryl group having from 1 to 18 carbon atoms or an alkoxy group having from 2 to 18 carbon atoms,

15

$\text{R}^2$  is a methoxy group,

20

the radicals  $\text{R}^4$  are each, independently of one another, hydrogen, an alkyl, cycloalkyl or aryl group which has from 1 to 18 carbon atoms and may be substituted by fluorine, chlorine, alkoxy, amine, cyanate or isocyanate groups or be unsubstituted,

25

the radicals  $\text{R}^5$  are each, independently of one another, a substituted or unsubstituted alkoxy group or aryloxy group having from 1 to 18 carbon atoms, a substituted or unsubstituted polyalkylene oxide having from 1 to 4000 carbon atoms and

30

$a$  is an integer from 0 to 2,

with the proviso that  $\text{R}^1$ ,  $\text{R}^4$  or  $\text{R}^5$  can together be part of a cyclic compound.

35

2. A process for preparing phosphorus-modified silanes which contain at least one methoxy group bound to the silicon and have the general formula I:



5

where

the radicals  $\text{R}^1$  are each, independently of one another,  
a substituted or unsubstituted alkyl,  
alkenyl, cycloalkyl or aryl group  
having from 1 to 18 carbon atoms or an  
alkoxy group having from 2 to 18 carbon  
atoms,

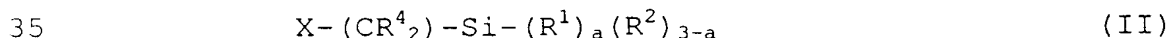
$\text{R}^2$  is a methoxy group,  
the radicals  $\text{R}^4$  are each, independently of one another,  
hydrogen, an alkyl, cycloalkyl or aryl  
group which has from 1 to 18 carbon  
atoms and may be substituted by  
fluorine, chlorine, alkoxy, amine,  
cyanate or isocyanate groups or be  
unsubstituted,

the radicals  $\text{R}^5$  are each, independently of one another,  
a substituted or unsubstituted alkoxy  
group or aryloxy group having from 1 to  
18 carbon atoms, a substituted or  
unsubstituted polyalkylene oxide having  
from 1 to 4000 carbon atoms and

$a$  is an integer from 0 to 2,

30

with the proviso that  $\text{R}^1$ ,  $\text{R}^4$  or  $\text{R}^5$  can together be part  
of a cyclic compound, characterized in that compounds  
of the general formula II:



35

where

**X** is fluorine, chlorine, bromine or iodine,

are reacted with compounds of the general formula  
5 (III):



3. The process as claimed in claim 2, characterized  
10 in that the reaction is carried out at temperatures of  
from 0 to 300°C.

4. The process as claimed in claim 2 or 3,  
characterized in that the reaction is carried out at  
15 temperatures of from 80 to 170°C.

5. The process as claimed in at least one of claims 2  
to 4, characterized in that the reaction component of  
the general formula III is reacted in an excess of from  
20 0.01 to 300 mol% with a silane of the general formula  
(II).

6. The process as claimed in at least one of claims 2  
to 5, characterized in that the reaction component of  
25 the general formula III is reacted in an excess of from  
10 to 100 mol% with a silane of the general formula II.

7. The process as claimed in at least one of claims 2  
to 6, characterized in that the reaction is carried out  
30 in the absence of a solvent.

8. The process as claimed in at least one of claims 2  
to 7, characterized in that the reaction is carried out  
at a pressure of from 1 to 10 bar.

35

9. The use of the phosphorus-modified silane of the  
general formula I as claimed in claim 1 as additive in  
antifreezes or as coating agent.

10. A cohydrolysis of the phosphorus-modified silanes of the general formula I as claimed in claim 1 in combination with alkoxyalkylsilanes for preparing functionalized resins.